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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Yasushi Hayashi

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EXAMINER

BAYOU, AMENE SETEGNE

ART UNIT

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3746

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,532	Applicant(s) HAYASHI, YASUSHI	
	Examiner AMENE S. BAYOU	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/03/09 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the **first paragraph of 35 U.S.C. 112**:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

3. In re claim 1 it recites as amended “the annular lubricant groove has an inner rim and an outer rim on the upper end of the main shaft”. The specification on page 4 paragraph 3 defines that the annular lubricant groove is formed between the chamfered section of the bearing and the main shaft.

4. The following is a quotation of the **second paragraph of 35 U.S.C. 112**:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claim 1 recites “an annular lubricant groove provided between an upper end of the main shaft and an upper end of the bearing” and further recites “the annular lubricant groove has an inner rim and an outer rim on the upper end of the main shaft” . It is

Art Unit: 3746

impossible for the lubricant groove to be located on the upper end of the main shaft while it is defined as it is being provided between an upper end of the main shaft and an upper end of the bearing.

7. Claim 1 further recites "the opening". There is no antecedent basis for the limitation.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

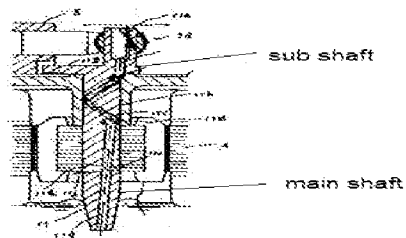
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1- 8 are rejected under 35 U.S.C. 103(a) as being as being unpatentable over Nobuo et al. (Japanese patent publication number S62-44108) in view of Goodnight (US patent number 6457561B1) further in view of Choi (US patent number 5971724) and Fujiwara et al. (US patent number 4472114).

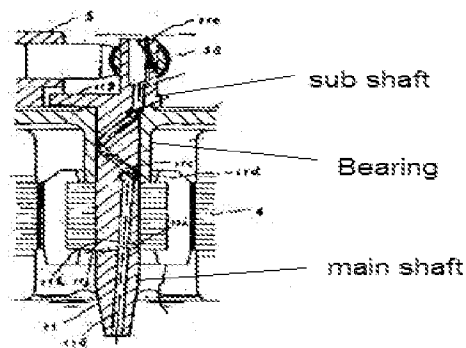
10 In re claim 1, Nobuo et al. disclose lubrication system for hermetic compressor including:

- **Electric compressor ,in figure 1 and 2 ,comprising :a single phase induction motor (4)** formed of stator and rotor
- **A compressing mechanism (5)** driven by the **motor (4)**
- **A hermetic container (2)** for accommodating the motor (4) and the compressing mechanism (2) and for pooling **lubricant (7)**
- A shaft having a main shaft and sub shaft (shown below)

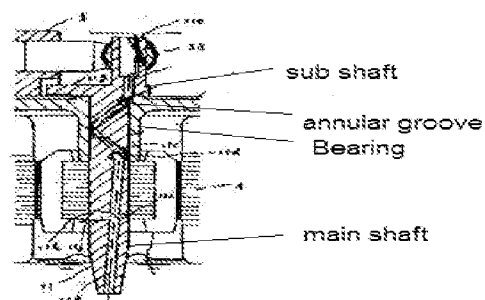
Art Unit: 3746



- A **cylinder (5)** for forming a compressing chamber
- A bearing (shown below) for supporting the main shaft

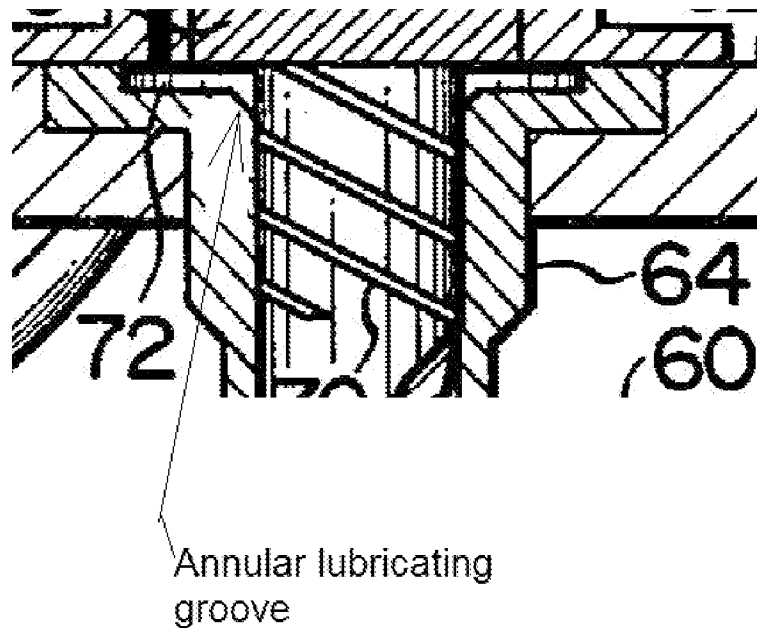


- A **centrifugal pump (11)** opening into the **lubricant (7)**
- A **forward leading groove (11c)** engraved on an outer wall of the main shaft and having a first end communicating with the centrifugal pump (11a).



Art Unit: 3746

- A **vertical hole (11f)** bored in the sub shaft and having a first end communicating with the annular lubricant groove and a second end opening into the hermetic container .Nobuo et al.,however fail to disclose the following limitation which is taught by Goodnight:
- Main shaft comprising a **first section (32)** having a first diameter and a **second section (46)** having a second diameter smaller than the first diameter, **reverse leading groove (44)** having a lead directing in an opposite direction to that of the **forward leading groove (42)**,and having a first end communicating with the **centrifugal pump (26)**, in **figure 7-9,14 and columns 3,line 39-50 and column 7,lines 7-11** . However,Nobuo et al. in view of Goodnight fail to disclose the following limitation which is taught by Choi:
- **Leading groove (12)** having a first end within the second section of the shaft (i.e. the smaller diameter portion of the shaft),clearly shown in **figure 2 and 4**. Nobuo et al. in view of Goodnight and Choi fail to disclose the following limitation which is taught by Fujiwara et al:
- A **second end (of the forward leading groove (70))** opening to an annular lubricant groove (shown for clarity below) provided between an upper end of the main shaft and an upper end of the **bearing (64)**;wherein the annular lubricant groove has an inner rim and an outer rim, the second end of the forward leading groove (70) opens to the inner rim of the annular lubricant groove, in **figure 1 and column 4,lines 29-31**.



11 . It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the compressor of Nobuo et al. by adding a reverse leading groove as taught Goodnight in order to ensure lubrication during reverse rotation of the compressor. Also since Nobuo et al. already disclosed forward leading groove having a first end communicating with the centrifugal pump and Fujiwara et al disclose a second end communicating with an annular lubricant groove making the reverse leading groove second end communicating with an annular lubricant groove is a mere duplication. In addition It would have been obvious to one skilled in the art at the time the invention was made to locate the first end of the reverse leading edge in the smaller diameter section of the shaft as taught by Choi since the outer area of the

Art Unit: 3746

smaller diameter section of the shaft serves as an oil accumulator which facilitates pumping action. Please also note that Goodnight, in column 6, lines 17-20 teaches that the origin of the forward and reverse grooves can be at different locations and selecting the origin point would be obvious to one skilled in the art since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

12. In re claim 2 Nobuo et al. in view of Goodnight further in view of Choi and Fujiwara et al as applied to claim 1 disclose the claimed invention:

Goodnight discloses:

- The **reverse leading groove (44)** is formed at the intermediate section of the shaft, in **figure 6**.

13. In re claim 3 and 6 Nobuo et al. in view of Goodnight further in view of Choi and Fujiwara as applied to claim 1 disclose the claimed invention:

Goodnight discloses:

- Crossectional area of the reverse leading groove is smaller than that of the forward leading groove, in **column 7, lines 10-11 and line 35-38**. Please note that such choice of different areas would be an obvious design choice in order to vary the flow rate in the forward and reverse leading grooves.

14. In re claim 4 and 7 Nobuo et al. in view of Goodnight further in view of Choi and Fujiwara as applied to claim 1 disclose the claimed invention:

Goodnight discloses:

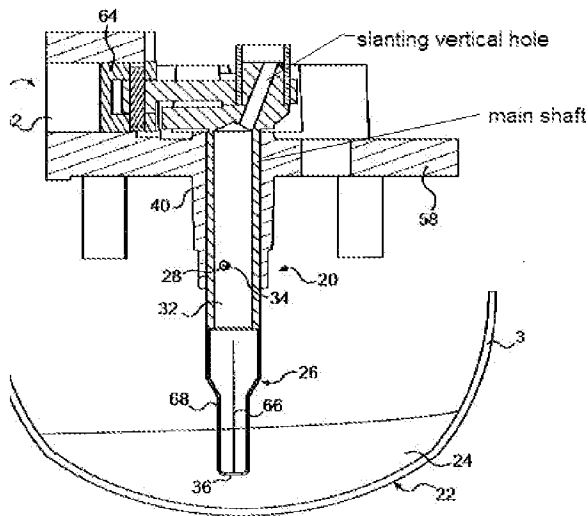
Art Unit: 3746

- Lead of the reverse leading groove is greater than that of the forward leading groove in **column 7, lines 10-11 and line 35-38.**

15. In re claim 5 Nobuo et al. in view of Goodnight further in view of Choi and Fujiwara as applied to claim 1 disclose the claimed invention:

Goodnight discloses:

- A vertical hole slants with respect to a shaft center of the main shaft such that an upper section of the vertical hole slants outward, in figure 2.



16. In re claim 8 Nobuo et al. in view of Goodnight further in view of Choi and Fujiwara as applied to claim 1 disclose the claimed invention:

Fujiwara et al disclose:

- An entire rounding section of the upper end of the bearing (64) is chamfered and the annular lubricant groove is formed between the chamfered section and the main shaft (see annotated drawing in rejection of claim 1 above)

Response to Arguments

17. Applicant's arguments with respect to claims 1 -7, filed on September 09 2009 have been considered but are not persuasive.

18. In regards to claim 1 applicant amended the same and on page 2 paragraph 2 argued that Fujiwara fails to disclose that the guide groove 70 opening to a part of gain portion 72.Examiner respectfully disagrees. Fujiwara in column 4,lines 29-31 clearly indicated that guide groove 70 is opening to gain portion 72.Applicant in the same paragraph further argues that Fujiwara fails to disclose the amended recitation “the annular lubricant groove has an inner rim and an outer rim on the upper end of the main shaft”. Examiner discussed, in the rejection of the claims above, that this limitation fails to comply with the written description and also conflicts with the definition presented for the lubricant groove in claim 1.

Conclusion

19. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amene S. Bayou whose telephone number is 571-270-3214. The examiner can normally be reached on Monday-Thursday, 9:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 3746

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746